

preignition. This is first noticed as a power loss but will eventually result in damage to the internal parts of the engine because of higher combustion chamber temperature.

### Detonation

Commonly called spark knock or fuel knock, detonation is the violent explosion of fuel in the combustion chamber instead of the controlled burn that occurs during normal combustion. Severe damage can result. Use of low octane gasoline is a common cause of detonation.

Even when using a high octane gasoline, detonation can still occur. Other causes are over-advanced ignition timing, lean fuel mixture at or near full throttle, inadequate engine cooling, or the excessive accumulation of carbon deposits in the combustion chamber and on the piston crown.

### Power Loss

Several factors can cause a lack of power and speed. Look for a clogged air filter or a fouled or damaged spark plug. A piston or cylinder that is galled, incorrect piston clearance, or worn or sticking piston rings may be responsible. Look for loose bolts, defective gaskets or leaking machined mating surfaces on the cylinder head, cylinder or crankcase.

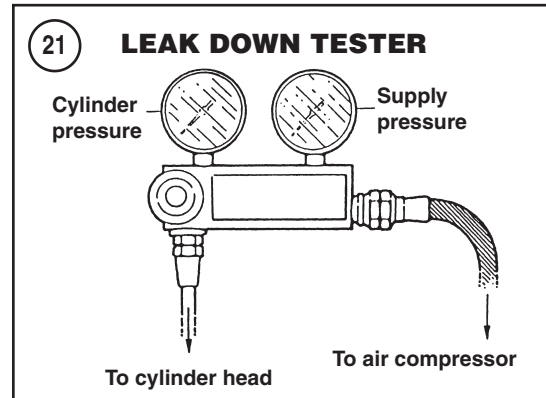
### Piston Seizure

This may be caused by incorrect bore clearance, piston rings with an improper end gap, compression leak, incorrect air/fuel mixture, spark plug of the wrong heat range or incorrect ignition timing. Overheating from any cause may result in piston seizure.

### Piston Slap

Piston slap is an audible slapping or rattling noise resulting from excessive piston-to-cylinder clearance. If allowed to continue, piston slap will eventually cause the piston skirt to crack and shatter.

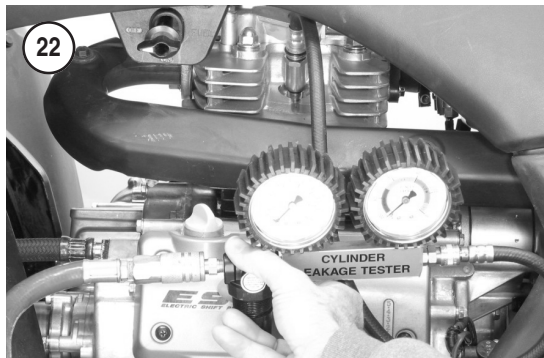
To prevent piston slap, clean the air filter element on a regular schedule. If piston slap is heard, disassemble the engine top end, measure the cylinder bore and piston diameter, and check for excessive



clearance. Replace parts that exceed wear limits or are damaged.

### ENGINE NOISES

1. A knocking or pinging during acceleration can be caused by using a lower octane fuel than recommended or a poor quality fuel. Incorrect carburetor jetting or a spark plug that is too hot can also cause pinging. Refer to *Spark Plug Heat Range* in Chapter Three. Also check for excessive carbon buildup in the combustion chamber or a faulty ICM unit.
2. A slapping or rattling noises at low speed or during acceleration can be caused by excessive piston-to-cylinder wall clearance. Also check for a bent connecting rod or worn piston pin and/or piston pin holes in the piston.
3. A knocking or rapping while decelerating is usually caused by excessive rod bearing clearance.
4. A persistent knocking and vibration or other noise is usually caused by worn main bearings. If the main bearings are good, consider the following:
  - a. Loose engine mounts.
  - b. Cracked frame.
  - c. Balancer gear improperly installed.
  - d. Worn or damaged balancer gear bearings.
  - e. Leaking cylinder head gasket.
  - f. Exhaust pipe leak at cylinder head.
  - g. Stuck piston ring.
  - h. Broken piston ring.
  - i. Partial engine seizure.
  - j. Excessive connecting rod small end bearing clearance.
  - k. Excessive connecting rod big end side clearance.
  - l. Excessive crankshaft runout.



- m. Worn or damaged primary drive gear.
- 5. A rapid on-off squeal may indicate a compression leak around the cylinder head gasket or spark plug.

### CYLINDER LEAK DOWN TEST

A cylinder leak down test can determine if an engine problem is caused by leaking valves, a blown head gasket, or broken, worn or stuck piston rings. Perform a cylinder leak down test by applying compressed air to the cylinder and then measuring the percent of leakage. A cylinder leak down tester and an air compressor are required to perform this test (**Figure 21**). Follow the tester manufacturer's directions along with the following information when performing a cylinder leak down test.

1. Start and run the engine until it reaches normal operating temperature. Then turn the engine off.
2. Remove the air filter assembly as described in Chapter Three. Open and secure the throttle in the wide-open position.
3. Remove the spark plug.
4. Position the piston at TDC on the compression stroke. See *Valve Clearance Check and Adjustment* in Chapter Three.

### NOTE

*The engine may turn when air pressure is applied to the cylinder. To prevent this from happening, shift the transmission into fifth gear and set the parking brake.*

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5. Connect the cylinder leak down tester into the spark plug hole (**Figure 22**).
6. Make a cylinder leak down test following the tester manufacturer's instructions. Listen for air leaking while noting the following:
  - a. Air leaking through the exhaust pipe indicates a leaking exhaust valve.
  - b. Air leaking through the carburetor indicates a leaking intake valve.
  - c. Air leaking through the crankcase breather tube indicates worn piston rings.
7. A cylinder with 10% or more cylinder leakage requires further service.
8. Remove the tester and reinstall the spark plug.

### CLUTCH

All clutch service, except adjustment, requires partial engine disassembly to identify and fix the problem. Refer to Chapter Six.

The TRX350 uses two clutch assemblies: centrifugal (A, **Figure 23**) and change (B).

### Clutch Slipping

1. Clutch wear or damage:
  - a. Incorrect clutch adjustment.
  - b. Worn clutch shoe (centrifugal clutch).
  - c. Loose, weak or damaged clutch spring (change and centrifugal clutch).
  - d. Worn friction plates (change clutch).
  - e. Warped steel plates (change clutch).
  - f. Worn clutch center and/or clutch outer (change clutch).
  - g. Incorrectly assembled clutch.
2. Engine oil:
  - a. Low oil level.
  - b. Oil additives.
  - c. Low viscosity oil.

### Clutch Dragging

1. Clutch wear or damage:

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